Source Water Assessment Program (SWAP) Report For OAKHAM ELEMENTARY SCHOOL

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

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Table 1: Public Water System (PWS) Information

PWS NAME	OAKHAM ELEMENTARY SCHOOL
PWS Address	DEACON ALLEN DR.
City/Town	OAKHAM
PWS ID Number	2222001
Local Contact	JOHN CIRELLI
Phone Number	(978) 355-4668

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	2222001-O1G	122	431	HIGH

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? inventory land uses within the recharge areas of all public water supply sources;
? assess the susceptibility of drinking water sources to contamination from these land uses; and
? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Well
The well for Oakham Elementary School is 450 feet deep, has a Zone I of 122 feet and an Interim Wellhead Protection Area (IWPA) of 431 feet. The well is located behind the school building in the parking lot. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached Map of the Zone I and IWPA. The well serving the school has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination. Please also see Table 2.
Key issues include**:**

1. **Inappropriate activities in Zone I;**
2. **An underground storage tank (UST) with heating oil;**
3. **Septic system;**
4. **Landscaping and lawn care; and**
5. **Transformer**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use or activity in the IWPA.

1. **Zone I**- Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Zone I contains a portion of the school building, storage shed, and parking areas. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

2. **Underground Storage Tank** – An UST with heating oil is within the IWPA. All tanks in close proximity to water supply wells should be upgraded to meet current construction and environmental standards. See Department of Fire Services Regulations - http://www.state.ma.us/dfs/cmr/cmridx.htm

3. **Septic System –** The septic system for the school is located within the IWPA. The system is pumped out in June of every year.

4. **Landscaping and Lawn care –** The janitor mows the lawn, and lime and fertilizer are applied in the Zone I and IWPA. The fertilizer is not stored within the protection areas. Fertilizer should not be used in the Zone I.

5. **Utility substation transformer** – A transformer mounted on a concrete pad is located within the Zone I. The unit is the new version which does not contain polychlorinated byphenyl (PCB) oil.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
School	Fuel Storage Below Ground	No	Yes	High	Heating oil tank
	Parking spaces and access road	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Utility substation transformer	Yes	Yes	Low	Provides electricity to the school
	Landscaping and lawn care	Yes	Yes	Moderate	Use of fertilizer
	Septic System	No	Yes	Moderate	See septic systems brochure in the appendix

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. PROTECTION RECOMMENDATIONS

Oakham Elementary School should review and adopt the following recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ Consider well relocation if Zone I threats cannot be mitigated**.** Please note that DEP Permit Approvals must be obtained prior to the installation of a new well.
- ✓ Prohibit public access to the well by locking, gating roads, and posting signs.
- ✓ Conduct regular inspections of the Zone I and IWPA. Look for illegal dumping and evidence of vandalism.
- ✓ Check any above ground tanks regularly for leaks, spills or damage.
- ✓ Redirect road and parking lot drainage away from well. Work with your community to ensure that storm water runoff in the IWPA is directed away from the well and is treated according to DEP guidance.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Use propane or natural gas for back-up power sources.

Training and Education:

- ✓ Train staff on proper hazardous material use, transportation, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum.

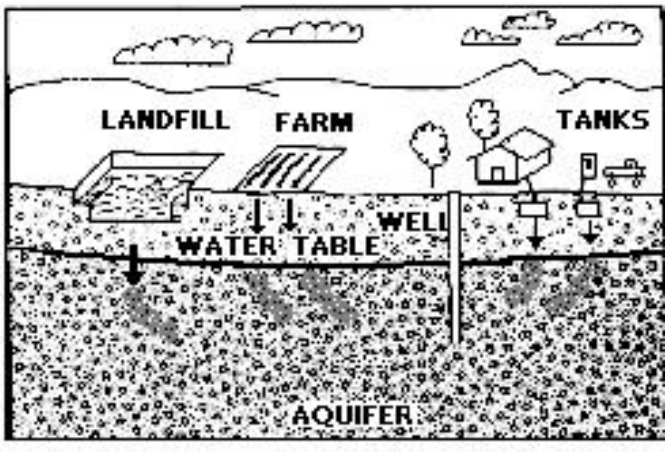

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, transportation, use and disposal of hazardous materials. To learn more, see the DEP hazardous materials guidance – Requirements for Small Quantity Generators at: http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm
- ✓ Eliminate non-sanitary wastewater discharges to the on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a DEP approved tight tank or to the sanitary sewer after receiving approval.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

For More Information:

Contact Josephine Yemoh-Ndi in DEP's Worcester Office at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at: www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Oakham to include the school's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Attachments:

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact sheet
- Septic System Fact Sheet